

CONFIDENTIAL

NOT FOR PUBLIC RELEASE

RECOMMENDATION

Based on information contained in the site inspection report and additional information developed from ongoing UST investigations, groundwater and soils exposure are the pathways of concern. Although groundwater samples were not collected during inspection or investigation activities, groundwater is a principle source of drinking water within 4 miles of site, serving a population of approximately 158,066. The nearest well is located approximately 0.6 miles east of the site. Additionally, the site is situated within a well head protection area. There are currently 100 employees on-site and the combined population in the four-mile vicinity of the site is 182,975. The above information supports a recommendation of **Lower Priority for Further Action** for the John Hassall Inc. site.



333202



APPENDIX D
SITE INSPECTION WORKSHEETS

DRAFT

NOV 6 1991

GENERAL INFORMATION (continued)

Source Descriptions:

POTENTIAL WASTE UNITS:**Waste Unit 1 - Surface Impoundment:** Identified in SI report (Ref. No. 28 p. 2)**Waste Unit 2 - Underground Storage Tanks (UST):** Identified in SI report (Ref. No. 28 p. 2)**Hazardous Waste Quantity (HWQ) Calculations:**
(See SI Tables 1 and 2)

Waste Unit 1 - Surface Impoundment: This potential waste unit was incorrectly identified in the SI report. This is not an impoundment, but a recharge basin which is used to provide rapid percolation of surficial waters into the aquifer. Additionally, Surface Impoundments as defined in current PA, SI and HRS guidance indicate a storage of accumulated waste. This is opposite of the purpose of a recharge basin.

Waste Unit 2 - Underground Storage Tank (UST): USTs #5,7,8 (10,000 gallons each) and 11 (1000 gallons) have been identified as leaking (Ref. Nos. 7,8,9). The contents of the tanks has been identified as chromium, copper, ethylbenzene, xylenes (m,p and o) and nickel contaminated waste waters from the plating processes.

Total Gallons = 31,000
HWQ = 10

HWQ =

10

Attach additional pages, if necessary.

DRAFT

NOV 5 1991

SI TABLE 1: HAZARDOUS WASTE QUANTITY (HWQ) SCORES FOR SINGLE SOURCE SITES AND FORMULAS FOR MULTIPLE SOURCE SITES

E

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned HWQ scores)				MULTIPLE SOURCE SITES
		HWQ = 10	HWQ = 100	HWQ = 10,000	HWQ = 1,000,000	
CONSTITUENT	N/A	≤ 100 lbs	> 100 to 10,000 lbs	> 10,000 to 1,000,000 lbs	> 1,000,000 lbs	lbs + 1
WASTEWATER	N/A	≤ 500,000 lbs	> 500,000 to 50 million lbs	> 50 million to 5 billion lbs	> 5 billion lbs	lbs + 5,000
VOLUME	Landfill	≤ 6.75 million ft ³ ≤ 250,000 yd ³	> 6.75 million to 675 million ft ³ > 250,000 to 25 million yd ³	> 675 million to 67.5 billion ft ³ > 25 million to 2.5 billion yd ³	> 67.5 billion ft ³ > 2.5 billion yd ³	ft ³ + 67,500 yd ³ + 2,500
	Surface impoundment	≤ 6,750 ft ³ ≤ 250 yd ³	> 6,750 to 675,000 ft ³ > 250 to 25,000 yd ³	> 675,000 to 67.5 million ft ³ > 25,000 to 2.5 million yd ³	> 67.5 million ft ³ > 2.5 million yd ³	ft ³ + 67.5 yd ³ + 2.5
	Drums	≤ 1,000 drums	> 1,000 to 100,000 drums	> 100,000 to 10 million drums	> 10 million drums	drums + 10
	Tanks and non-drum containers	≤ 50,000 gallons	> 50,000 to 5 million gallons	> 5 million to 500 million gallons	> 500 million gallons	gallons + 50
	Contaminated soil	≤ 6.75 million ft ³ ≤ 250,000 yd ³	> 6.75 million to 675 million ft ³ > 250,000 to 25 million yd ³	> 675 million to 67.5 billion ft ³ > 25 million to 2.5 billion yd ³	> 67.5 billion ft ³ > 2.5 billion yd ³	ft ³ + 67,500 yd ³ + 2,500
AREA	Pile	≤ 6,750 ft ² ≤ 250 yd ²	> 6,750 to 675,000 ft ² > 250 to 25,000 yd ²	> 675,000 to 67.5 million ft ² > 25,000 to 2.5 million yd ²	> 67.5 million ft ² > 2.5 million yd ²	ft ² + 67.5 yd ² + 2.5
	Landfill	≤ 340,000 ft ² ≤ 7.8 acres	> 340,000 to 34 million ft ² > 7.8 to 780 acres	> 34 million to 3.4 billion ft ² > 780 to 78,000 acres	> 3.4 billion ft ² > 78,000 acres	ft ² + 3,400 acres + 0.078
	Surface impoundment	≤ 1,300 ft ² ≤ 0.029 acres	> 1,300 to 130,000 ft ² > 0.029 to 2.9 acres	> 130,000 to 13 million ft ² > 2.9 to 290 acres	> 13 million ft ² > 290 acres	ft ² + 13 acres + 0.00029
	Contaminated soil	≤ 3.4 million ft ² ≤ 78 acres	> 3.4 million to 340 million ft ² > 78 to 7,800 acres	> 340 million to 34 billion ft ² > 7,800 to 780,000 acres	> 34 billion ft ² > 780,000 acres	ft ² + 34,000 acres + 0.7
	Pile*	≤ 1,300 ft ² ≤ 0.029 acres	> 1,300 to 130,000 ft ² > 0.029 to 2.9 acres	> 130,000 to 13 million ft ² > 2.9 to 290 acres	> 13 million ft ² > 290 acres	ft ² + 13 acres + 0.00029
	Land treatment	≤ 27,000 ft ² ≤ 0.62 acres	> 27,000 to 2.7 million ft ² > 0.62 to 62 acres	> 2.7 million to 270 million ft ² > 62 to 6,200 acres	> 270 million ft ² > 6,200 acres	ft ² + 270 acres + 0.0062

1 ton = 2,000 lbs = 1 yd³ = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

SI TABLE 2: HWQ SCORES FOR MULTIPLE SOURCE SITES

Site WQ Total	HWQ Score
> 0 to 100	10
> 100 to 10,000	100
> 10,000 to 1 million	10,000
> 1 million	1,000,000

DRAFT

NOV 1 1991

SI TABLE 3: SOURCE HAZARDOUS SUBSTANCE SUMMARY

6

Source ID: UNDERGROUND STORAGE TANKS (31,000 Gallons) CCV and attach additional pages if necessary.

Hazardous Substance	Toxicity	GW Toxicity/ Mobility	Toxicity/ Persistence	Toxicity/ Persistence/ Bioaccumulation	Ecotoxicity/ Persistence/ Ecobioaccumulation	Air Toxicity/ Mobility
Chromium	10,000	100	10,000	5×10^4	5×10^4	NA
Copper	—	—	—	—	5×10^6	NA
Ethylbenzene	10	0.1	4.0	200	2000	10
Xylene M	1.0	0.01	0.4	200	2×10^4	1.0
Xylene P	1.0	0.01	0.4	20	2000	1.0
Xylene O	1.0	0.01	0.4	20	2000	1.0
Nickel	10,000	100	10,000	5×10^3	5×10^3	NA
Highest Values	10,000	100	10,000	5×10^4	5×10^6	10

Ref. No. 9

Source ID:

[illegible]

Source ID:

[illegible]

**Highest Values
(All Sources)**

No GW samples to support GW contamination.

<i>Sample ID</i>	<i>Hazardous Substance</i>	<i>Toxicity/Mobility</i>	<i>Reference</i>
N/A			
	Highest Toxicity/Mobility		

(Ref Nos. 4; 24; 26)

131 g NOV

(Ref Nos. 4; 24; 26)

Well ID: _____ Level I _____ Level II _____ Population Served _____

Sample ID	Hazardous Substance	Concentration (ug/L)	Benchmark Concentration (MCL or ATCLQ)	Percent of Benchmark	Cancer Risk Concentration	Percent of Cancer Risk Concentration	Reference Dose	Percent of Reference Dose
	NA							
			Highest Percent		Sum of Percents		Sum of Percents	

Well ID: _____ **Level I** _____ **Level II** _____ **Population Served** _____

[illegible]

GROUND WATER PATHWAY WORKSHEET

9

FORM 6 1991

LIKELIHOOD OF RELEASE	Score	Data Type	Reference
1. OBSERVED RELEASE: If sampling data or direct observation support a release to ground water, assign a score of 550. Record observed release substances on SI Table 4.			
2. NO OBSERVED RELEASE: If sampling data do not support a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340.	500		
LR = 500			

TARGETS

<p>Are any wells part of a blended system? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, attach a page to show apportionment calculations.</p>			
<p>3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates that any drinking-water well has been exposed to a hazardous substance from the site, calculate the factor score based on the number of people served by using SI Table 5.</p> <p>Level I: _____ people x 10 = _____</p> <p>Level II: _____ people x 1 = _____ Total = 0</p>			Ref No 10
<p>4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking-water wells that are not exposed to a hazardous substance from the site; record the population for each distance category in SI Table 6a or 6b, and assign the total population score.</p>	2,201		Ref Nos 13, 23
<p>5. NEAREST WELL: Assign a score of 50 for any Level I Actual Contamination Targets. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the Nearest Well score from SI Table 6a or 6b. If no drinking-water wells exist within 4 miles, assign 0.</p>	9		Ref No 27
<p>6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA, or if a ground water observed release has occurred within a WHPA, assign a score of 20; assign 5 if neither condition applies but a WHPA is within 4 miles; otherwise assign 0.</p>	20		Ref No 83
<p>7. RESOURCES</p>	5		
T = 2,235			

DRAFT

FORM 6 1991

Site Name:

Date:

SI TABLE 6: VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS

SI Table 6a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category												Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
0 to 1/4 mile	0	20	1	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	—
> 1/4 to 1/2 mile	0	18	1	1	3	10	32	101	323	1,012	3,233	10,121	32,324	101,212	—
> 1/2 to 1 mile	9,952	9	1	1	2	6	17	52	167	522	1,668	5,224	16,684	52,239	167
> 1 to 2 miles	31,782	5	1	1	1	3	9	29	94	294	939	2,938	9,385	29,384	939
> 2 to 3 miles	49,548	3	1	1	1	2	7	21	68	212	678	2,122	6,777	21,222	678
> 3 to 4 miles	64,868	2	1	1	1	1	4	13	42	131	417	1,308	4,171	13,060	417
Nearest Well =		9													Score = 2201

Ref. Nos.
10, 12,
13, 14,
15, 16,
17, 18
and 23

SI Table 6b: Karst Aquifers

Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category												Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
0 to 1/4 mile	—	20	1	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	—
> 1/4 to 1/2 mile	—	20	1	1	3	10	32	101	323	1,012	3,233	10,121	32,324	101,212	—
> 1/2 to 1 mile	—	20	1	1	3	8	26	82	261	816	2,607	8,182	26,068	81,623	—
> 1 to 2 miles	—	20	1	1	3	8	26	82	261	816	2,607	8,162	26,068	81,623	—
> 2 to 3 miles	—	20	1	1	3	8	26	82	261	816	2,607	8,162	26,068	81,623	—
> 3 to 4 miles	—	20	1	1	3	8	26	82	261	816	2,607	8,162	26,068	81,623	—
Nearest Well =															Score =

DRAFT

John Hassall Inc.
8002-064
June 30, 1992

GROUND WATER PATHWAY (concluded)

1

WASTE CHARACTERISTICS

WASTE CHARACTERISTICS		Score	Data Type	Ref																					
8. If any Actual Contamination Targets exist for the ground water pathway, assign the Hazardous waste quantity score calculated on page 4, or a score of 100, whichever is GREATER; if no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated on page 4.		10																							
9. Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.		100																							
10. Multiply the ground water toxicity/mobility and waste quantity scores. Assign the Waste Characteristics score from the table below:		WC = 6																							
<table><tr><th>Product</th><th>WC Score</th><th>Product</th><th>WC Score</th></tr><tr><td>0</td><td>0</td><td>10,000 to <1E+0</td><td>10</td></tr><tr><td>>0 to <10</td><td>1</td><td>1E+05 to <1E+0</td><td>18</td></tr><tr><td>10 to <100</td><td>2</td><td>1E+06 to <1E+0</td><td>32</td></tr><tr><td>100 to <1,000</td><td>3</td><td>1E+07 to <1E+0</td><td>56</td></tr><tr><td>1,000 to <10,000</td><td>6</td><td>1E+08 or greater</td><td>100</td></tr></table>					Product	WC Score	Product	WC Score	0	0	10,000 to <1E+0	10	>0 to <10	1	1E+05 to <1E+0	18	10 to <100	2	1E+06 to <1E+0	32	100 to <1,000	3	1E+07 to <1E+0	56	1,000 to <10,000
Product	WC Score	Product	WC Score																						
0	0	10,000 to <1E+0	10																						
>0 to <10	1	1E+05 to <1E+0	18																						
10 to <100	2	1E+06 to <1E+0	32																						
100 to <1,000	3	1E+07 to <1E+0	56																						
1,000 to <10,000	6	1E+08 or greater	100																						

GROUND WATER PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82,500} =$$

81.273

$$\frac{6 \times 500 \times 2,235}{82,500} = 81.273$$

DRAFT

[illegible]

No samples taken
to support
SW contamination

Intake ID: _____ Sample Type: _____ Level I _____ Level II _____ Population Served _____

[illegible]

Intake ID: _____ Sample Type: _____ Level I _____ Level II _____ Population Served _____

[illegible]

NOV 6 1992

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET

14

LIKELIHOOD OF RELEASE

1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water, assign a score of 550. Record observed release substances on SI Table 7.
2. NO OBSERVED RELEASE: If sampling data do not support a release to surface water, use the table below to assign a score based on distance to surface water and flood frequency.

Distance to surface water < 2500 feet	500
Distance to surface water > 2500 feet, and	
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

Score Data Type Reference

100	
100	

Ref
No
28

LR =

DRINKING WATER THREAT TARGETS

3. Record the water body type, flow (if applicable), and number of people served by each drinking-water intake within the target distance limit. If there is no drinking-water intake within the target distance limit, assign 0 to factors 4, 5, and 6.

Intake Name	Water Body Type	Flow	People Served
		cfs	
		cfs	
		cfs	

Are any intakes part of a blended system? Yes ☐ No ☐
If yes, attach a page to show apportionment calculations.

4. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates that any drinking-water intake listed above has been exposed to a hazardous substance from the site, list the intake name and calculate the factor score based on the intake population from SI Table 8.

Level I: _____ people x 10 = _____
Level II: _____ people x 1 = _____ Total = _____

5. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking-water intakes that have not been exposed to a hazardous substance from the site, and assign the total population score from SI Table 9.

6. NEAREST INTAKE: Assign a score of 50 for any Actual Contamination Targets. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the nearest intake score from SI Table 9. If no drinking-water intakes exist, assign 0.

7. RESOURCES

0	
0	
0	
0	
0	
0	
0	

Ref
Nos
25;
28

Ref
Nos
25;
28

Ref
Nos
25;
28

Ref
Nos
25;
28

T =

DRAFT

NOV 5 1992

There are no surface water intakes.

SI TABLE 9: VALUES FOR POTENTIAL CONTAMINATION SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow (see SI Table 11)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category												Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	3,000,001 to 10,000,000	
< 10 cfs		20	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	521,359	NA
10 to 100 cfs		2	1	1	2	5	16	52	163	521	1,633	5,214	16,325	52,136	
> 100 to 1,000 cfs		1	0	0	1	1	2	5	16	52	163	521	1,633	5,214	
> 1,000 to 10,000 cfs		0	0	0	0	0	1	1	2	5	16	52	163	521	
> 10,000 cfs or Great Lakes		0	0	0	0	0	0	0	1	1	2	5	16	52	
3 mile Mixing Zone		10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,623	260,680	
Nearest Intake =															Score =

SI TABLE 10: SURFACE WATER TYPE / FLOW CHARACTERISTICS
WITH DILUTION WEIGHTS FOR POTENTIAL CONTAMINATION SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body		Dilution Weight
Water Body Type	OR Flow	
minimal stream	< 10 cfs	1
small to moderate stream	10 to 100 cfs	0.1
moderate to large stream	> 100 to 1,000 cfs	N/A
large stream to river	> 1,000 to 10,000 cfs	N/A
large river	> 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers	10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes	N/A	N/A

SI 1001
SI 1002
SI 1003
SI 1004
SI 1005
SI 1006
SI 1007
SI 1008
SI 1009
SI 1010
SI 1011
SI 1012
SI 1013
SI 1014
SI 1015
SI 1016
SI 1017
SI 1018
SI 1019
SI 1020
SI 1021
SI 1022
SI 1023
SI 1024
SI 1025
SI 1026
SI 1027
SI 1028
SI 1029
SI 1030
SI 1031
SI 1032
SI 1033
SI 1034
SI 1035
SI 1036
SI 1037
SI 1038
SI 1039
SI 1040
SI 1041
SI 1042
SI 1043
SI 1044
SI 1045
SI 1046
SI 1047
SI 1048
SI 1049
SI 1050
SI 1051
SI 1052
SI 1053
SI 1054
SI 1055
SI 1056
SI 1057
SI 1058
SI 1059
SI 1060
SI 1061
SI 1062
SI 1063
SI 1064
SI 1065
SI 1066
SI 1067
SI 1068
SI 1069
SI 1070
SI 1071
SI 1072
SI 1073
SI 1074
SI 1075
SI 1076
SI 1077
SI 1078
SI 1079
SI 1080
SI 1081
SI 1082
SI 1083
SI 1084
SI 1085
SI 1086
SI 1087
SI 1088
SI 1089
SI 1090
SI 1091
SI 1092
SI 1093
SI 1094
SI 1095
SI 1096
SI 1097
SI 1098
SI 1099
SI 1100
SI 1101
SI 1102
SI 1103
SI 1104
SI 1105
SI 1106
SI 1107
SI 1108
SI 1109
SI 1110
SI 1111
SI 1112
SI 1113
SI 1114
SI 1115
SI 1116
SI 1117
SI 1118
SI 1119
SI 1120
SI 1121
SI 1122
SI 1123
SI 1124
SI 1125
SI 1126
SI 1127
SI 1128
SI 1129
SI 1130
SI 1131
SI 1132
SI 1133
SI 1134
SI 1135
SI 1136
SI 1137
SI 1138
SI 1139
SI 1140
SI 1141
SI 1142
SI 1143
SI 1144
SI 1145
SI 1146
SI 1147
SI 1148
SI 1149
SI 1150
SI 1151
SI 1152
SI 1153
SI 1154
SI 1155
SI 1156
SI 1157
SI 1158
SI 1159
SI 1160
SI 1161
SI 1162
SI 1163
SI 1164
SI 1165
SI 1166
SI 1167
SI 1168
SI 1169
SI 1170
SI 1171
SI 1172
SI 1173
SI 1174
SI 1175
SI 1176
SI 1177
SI 1178
SI 1179
SI 1180
SI 1181
SI 1182
SI 1183
SI 1184
SI 1185
SI 1186
SI 1187
SI 1188
SI 1189
SI 1190
SI 1191
SI 1192
SI 1193
SI 1194
SI 1195
SI 1196
SI 1197
SI 1198
SI 1199
SI 1200
SI 1201
SI 1202
SI 1203
SI 1204
SI 1205
SI 1206
SI 1207
SI 1208
SI 1209
SI 1210
SI 1211
SI 1212
SI 1213
SI 1214
SI 1215
SI 1216
SI 1217
SI 1218
SI 1219
SI 1220
SI 1221
SI 1222
SI 1223
SI 1224
SI 1225
SI 1226
SI 1227
SI 1228
SI 1229
SI 1230
SI 1231
SI 1232
SI 1233
SI 1234
SI 1235
SI 1236
SI 1237
SI 1238
SI 1239
SI 1240
SI 1241
SI 1242
SI 1243
SI 1244
SI 1245
SI 1246
SI 1247
SI 1248
SI 1249
SI 1250
SI 1251
SI 1252
SI 1253
SI 1254
SI 1255
SI 1256
SI 1257
SI 1258
SI 1259
SI 1260
SI 1261
SI 1262
SI 1263
SI 1264
SI 1265
SI 1266
SI 1267
SI 1268
SI 1269
SI 1270
SI 1271
SI 1272
SI 1273
SI 1274
SI 1275
SI 1276
SI 1277
SI 1278
SI 1279
SI 1280
SI 1281
SI 1282
SI 1283
SI 1284
SI 1285
SI 1286
SI 1287
SI 1288
SI 1289
SI 1290
SI 1291
SI 1292
SI 1293
SI 1294
SI 1295
SI 1296
SI 1297
SI 1298
SI 1299
SI 1300
SI 1301
SI 1302
SI 1303
SI 1304
SI 1305
SI 1306
SI 1307
SI 1308
SI 1309
SI 1310
SI 1311
SI 1312
SI 1313
SI 1314
SI 1315
SI 1316
SI 1317
SI 1318
SI 1319
SI 1320
SI 1321
SI 1322
SI 1323
SI 1324
SI 1325
SI 1326
SI 1327
SI 1328
SI 1329
SI 1330
SI 1331
SI 1332
SI 1333
SI 1334
SI 1335
SI 1336
SI 1337
SI 1338
SI 1339
SI 1340
SI 1341
SI 1342
SI 1343
SI 1344
SI 1345
SI 1346
SI 1347
SI 1348
SI 1349
SI 1350
SI 1351
SI 1352
SI 1353
SI 1354
SI 1355
SI 1356
SI 1357
SI 1358
SI 1359
SI 1360
SI 1361
SI 1362
SI 1363
SI 1364
SI 1365
SI 1366
SI 1367
SI 1368
SI 1369
SI 1370
SI 1371
SI 1372
SI 1373
SI 1374
SI 1375
SI 1376
SI 1377
SI 1378
SI 1379
SI 1380
SI 1381
SI 1382
SI 1383
SI 1384
SI 1385
SI 1386
SI 1387
SI 1388
SI 1389
SI 1390
SI 1391
SI 1392
SI 1393
SI 1394
SI 1395
SI 1396
SI 1397
SI 1398
SI 1399
SI 1400
SI 1401
SI 1402
SI 1403
SI 1404
SI 1405
SI 1406
SI 1407
SI 1408
SI 1409
SI 1410
SI 1411
SI 1412
SI 1413
SI 1414
SI 1415
SI 1416
SI 1417
SI 1418
SI 1419
SI 1420
SI 1421
SI 1422
SI 1423
SI 1424
SI 1425
SI 1426
SI 1427
SI 1428
SI 1429
SI 1430
SI 1431
SI 1432
SI 1433
SI 1434
SI 1435
SI 1436
SI 1437
SI 1438
SI 1439
SI 1440
SI 1441
SI 1442
SI 1443
SI 1444
SI 1445
SI 1446
SI 1447
SI 1448
SI 1449
SI 1450
SI 1451
SI 1452
SI 1453
SI 1454
SI 1455
SI 1456
SI 1457
SI 1458
SI 1459
SI 1460
SI 1461
SI 1462
SI 1463
SI 1464
SI 1465
SI 1466
SI 1467
SI 1468
SI 1469
SI 1470
SI 1471
SI 1472
SI 1473
SI 1474
SI 1475
SI 1476
SI 1477
SI 1478
SI 1479
SI 1480
SI 1481
SI 1482
SI 1483
SI 1484
SI 1485
SI 1486
SI 1487
SI 1488
SI 1489
SI 1490
SI 1491
SI 1492
SI 1493
SI 1494
SI 1495
SI 1496
SI 1497
SI 1498
SI 1499
SI 1500
SI 1501
SI 1502
SI 1503
SI 1504
SI 1505
SI 1506
SI 1507
SI 1508
SI 1509
SI 1510
SI 1511
SI 1512
SI 1513
SI 1514
SI 1515
SI 1516
SI 1517
SI 1518
SI 1519
SI 1520
SI 1521
SI 1522
SI 1523
SI 1524
SI 1525
SI 1526
SI 1527
SI 1528
SI 1529
SI 1530
SI 1531
SI 1532
SI 1533
SI 1534
SI 1535
SI 1536
SI 1537
SI 1538
SI 1539
SI 1540
SI 1541
SI 1542
SI 1543
SI 1544
SI 1545
SI 1546
SI 1547
SI 1548
SI 1549
SI 1550
SI 1551
SI 1552
SI 1553
SI 1554
SI 1555
SI 1556
SI 1557
SI 1558
SI 1559
SI 1560
SI 1561
SI 1562
SI 1563
SI 1564
SI 1565
SI 1566
SI 1567
SI 1568
SI 1569
SI 1570
SI 1571
SI 1572
SI 1573
SI 1574
SI 1575
SI 1576
SI 1577
SI 1578
SI 1579
SI 1580
SI 1581
SI 1582
SI 1583
SI 1584
SI 1585
SI 1586
SI 1587
SI 1588
SI 1589
SI 1590
SI 1591
SI 1592
SI 1593
SI 1594
SI 1595
SI 1596
SI 1597
SI 1598
SI 1599
SI 1600
SI 1601
SI 1602
SI 1603
SI 1604
SI 1605
SI 1606
SI 1607
SI 1608
SI 1609
SI 1610
SI 1611
SI 1612
SI 1613
SI 1614
SI 1615
SI 1616
SI 1617
SI 1618
SI 1619
SI 1620
SI 1621
SI 1622
SI 1623
SI 1624
SI 1625
SI 1626
SI 1627
SI 1628
SI 1629
SI 1630
SI 1631
SI 1632
SI 1633
SI 1634
SI 1635
SI 1636
SI 1637
SI 1638
SI 1639
SI 1640
SI 1641
SI 1642
SI 1643
SI 1644
SI 1645
SI 1646
SI 1647
SI 1648
SI 1649
SI 1650
SI 1651
SI 1652
SI 1653
SI 1654
SI 1655
SI 1656
SI 1657
SI 1658
SI 1659
SI 1660
SI 1661
SI 1662
SI 1663
SI 1664
SI 1665
SI 1666
SI 1667
SI 1668
SI 1669
SI 1670
SI 1671
SI 1672
SI 1673
SI 1674
SI 1675
SI 1676
SI 1677
SI 1678
SI 1679
SI 1680
SI 1681
SI 1682
SI 1683
SI 1684
SI 1685
SI 1686
SI 1687
SI 1688
SI 1689
SI 1690
SI 1691
SI 1692
SI 1693
SI 1694
SI 1695
SI 1696
SI 1697
SI 1698
SI 1699
SI 1700
SI 1701
SI 1702
SI 1703
SI 1704
SI 1705
SI 1706
SI 1707
SI 1708
SI 1709
SI 1710
SI 1711
SI 1712
SI 1713
SI 1714
SI 1715
SI 1716
SI 1717
SI 1718
SI 1719
SI 1720
SI 1721
SI 1722
SI 1723
SI 1724
SI 1725
SI 1726
SI 1727
SI 1728
SI 1729
SI 1730
SI 1731
SI 1732
SI 1733
SI 1734
SI 1735
SI 1736
SI 1737
SI 1738
SI 1739
SI 1740
SI 1741
SI 1742
SI 1743
SI 1744
SI 1745
SI 1746
SI 1747
SI 1748
SI 1749
SI 1750
SI 1751
SI 1752
SI 1753
SI 1754
SI 1755
SI 1756
SI 1757
SI 1758
SI 1759
SI 1760
SI 1761
SI 1762
SI 1763
SI 1764
SI 1765
SI 1766
SI 1767
SI 1768
SI 1769
SI 1770
SI 1771
SI 1772
SI 1773
SI 1774
SI 1775
SI 1776
SI 1777
SI 1778
SI 1779
SI 1780
SI 1781
SI 1782
SI 1783
SI 1784
SI 1785
SI 1786
SI 1787
SI 1788
SI 1789
SI 1790
SI 1791
SI 1792
SI 1793
SI 1794
SI 1795
SI 1796
SI 1797
SI 1798
SI 1799
SI 1800
SI 1801
SI 1802
SI 1803
SI 1804
SI 1805
SI 1806
SI 1807
SI 1808
SI 1809
SI 1810
SI 1811
SI 1812
SI 1813
SI 1814
SI 1815
SI 1816
SI 1817
SI 1818
SI 1819
SI 1820
SI 1821
SI 1822
SI 1823
SI 1824
SI 1825
SI 1826
SI 1827
SI 1828
SI 1829
SI 1830
SI 1831
SI 1832
SI 1833
SI 1834
SI 1835
SI 1836
SI 1837
SI 1838
SI 1839
SI 1840
SI 1841
SI 1842
SI 1843
SI 1844
SI 1845
SI 1846
SI 1847
SI 1848
SI 1849
SI 1850
SI 1851
SI 1852
SI 1853
SI 1854
SI 1855
SI 1856
SI 1857
SI 1858
SI 1859
SI 1860
SI 1861
SI 1862
SI 1863
SI 1864
SI 1865
SI 1866
SI 1867
SI 1868
SI 1869
SI 1870
SI 1871
SI 1872
SI 1873
SI 1874
SI 1875
SI 1876
SI 1877
SI 1878
SI 1879
SI 1880
SI 1881
SI 1882
SI 1883
SI 1884
SI 1885
SI 1886
SI 1887
SI 1888
SI 1889
SI 1890
SI 1891
SI 1892
SI 1893
SI 1894
SI 1895
SI 1896
SI 1897
SI 1898
SI 1899
SI 1900
SI 1901
SI 1902
SI 1903
SI 1904
SI 1905
SI 1906
SI 1907
SI 1908
SI 1909
SI 1910
SI 1911
SI 1912
SI 1913
SI 1914
SI 1915
SI 1916
SI 1917
SI 1918
SI 1919
SI 1920
SI 1921
SI 1922
SI 1923
SI 1924
SI 1925
SI 1926
SI 1927
SI 1928
SI 1929
SI 1930
SI 1931
SI 1932
SI 1933
SI 1934
SI 1935
SI 1936
SI 1937
SI 1938
SI 1939
SI 1940
SI 1941
SI 1942
SI 1943
SI 1944
SI 1945
SI 1946
SI 1947
SI 1948
SI 1949
SI 1950
SI 1951
SI 1952
SI 1953
SI 1954
SI 1955
SI 1956
SI 1957
SI 1958
SI 1959
SI 1960
SI 1961
SI 1962
SI 1963
SI 1964
SI 1965
SI 1966
SI 1967
SI 1968
SI 1969
SI 1970
SI 1971
SI 1972
SI 1973
SI 1974
SI 1975
SI 1976
SI 1977
SI 1978
SI 1979
SI 1980
SI 1981
SI 1982
SI 1983
SI 1984
SI 1985
SI 1986
SI 1987
SI 1988
SI 1989
SI 1990
SI 1991
SI 1992
SI 1993
SI 1994
SI 1995
SI 1996
SI 1997
SI 1998
SI 1999
SI 2000
SI 2001
SI 2002
SI 2003
SI 2004
SI 2005
SI 2006
SI 2007
SI 2008
SI 2009
SI 2010
SI 2011
SI 2012
SI 2013
SI 2014
SI 2015
SI 2016
SI 2017
SI 2018
SI 2019
SI 2020
SI 2021
SI 2022
SI 2023
SI 2024
SI 2025
SI 2026
SI 2027
SI 2028
SI 2029
SI 2030
SI 2031
SI 2032
SI 2033
SI 2034
SI 2035
SI 2036
SI 2037
SI 2038
SI 2039
SI 2040
SI 2041
SI 2042
SI 2043
SI 2044
SI 2045
SI 2046
SI 2047
SI 2048
SI 2049
SI 2050
SI 2051
SI 2052
SI 2053
SI 2054
SI 2055
SI 2056
SI 2057
SI 2058
SI 2059
SI 2060
SI 2061
SI 2062
SI 2063
SI 2064
SI 2065
SI 2066
SI 2067
SI 2068
SI 2069
SI 2070
SI 2071
SI 2072
SI 2073
SI 2074
SI 2075
SI 2076
SI 2077
SI 2078
SI 2079
SI 2080
SI 2081
SI 2082
SI 2083
SI 2084
SI 2085
SI 2086
SI 2087
SI 2088
SI 2089
SI 2090
SI 2091
SI 2092
SI 2093
SI 2094
SI 2095
SI 2096
SI 2097
SI 2098
SI 2099
SI 2100
SI 2101
SI 2102
SI 2103
SI 2104
SI 2105
SI 2106
SI 2107
SI 2108
SI 2109
SI 2110
SI 2111
SI 2112
SI 2113
SI 2114
SI 2115
SI 2116
SI 2117
SI 2118
SI 2119
SI 2120
SI 2121
SI 2122
SI 2123
SI 2124
SI 2125
SI 2126
SI 2127
SI 2128
SI 2129
SI 2130
SI 2131
SI 2132
SI 2133
SI 2134
SI 2135
SI 2136
SI 2137
SI 2138
SI 2139
SI 2140
SI 2141
SI 2142
SI 2143
SI 2144
SI 2145
SI 2146
SI 2147
SI 2148
SI 2149
SI 2150
SI 2151
SI 2152
SI 2153
SI 2154
SI 2155
SI 2156
SI 2157
SI 2158
SI 2159
SI 2160
SI 2161
SI 2162
SI 2163
SI 2164
SI 2165
SI 2166
SI 2167
SI 2168
SI 2169
SI 2170
SI 2171
SI 2172
SI 2173
SI 2174
SI 2175
SI 2176
SI 2177
SI 2178
SI 2179
SI 2180
SI 2181
SI 2182
SI 2183
SI 2184
SI 2185
SI 2186
SI 2187
SI 2188
SI 2189
SI 2190
SI 2191
SI 2192
SI 2193
SI 2194
SI 2195
SI 2196
SI 2197
SI 2198
SI 2199
SI 2200
SI 2201
SI 2202
SI 2203
SI 2204
SI 2205
SI 2206
SI 2207
SI 2208
SI 2209
SI 2210
SI 2211
SI 2212
SI 2213
SI 2214
SI 2215
SI 2216
SI 2217
SI 2218
SI 2219
SI 2220
SI 2221
SI 2222
SI 2223
SI 2224
SI 2225
SI 2226
SI 2227
SI 2228
SI 2229
SI 2230
SI 2231
SI 2232
SI 2233
SI 2234
SI 2235
SI 2236
SI 2237
SI 2238
SI 2239
SI 2240
SI 2241
SI 2242
SI 2243
SI 2244
SI 2245
SI 2246
SI 2247
SI 2248
SI 2249
SI 2250
SI 2251
SI 2252
SI 2253
SI 2254
SI 2255
SI 2256
SI 2257
SI 2258
SI 2259
SI 2260
SI 2261
SI 2262
SI 2263
SI 2264
SI 2265
SI 2266
SI 2267
SI 2268
SI 2269
SI 2270
SI 2271
SI 2272
SI 2273
SI 2274
SI 2275
SI 2276
SI 2277
SI 2278
SI 2279
SI 2280
SI 2281
SI 2282
SI 2283
SI 2284
SI 2285
SI 2286
SI 2

No analytical data to support contamination to human food chain

SI TABLE 11: HUMAN FOOD CHAIN ACTUAL CONTAMINATION TARGETS

Fishery ID: _____ Sample Type: _____ Level I _____ Level II _____

<i>Sample ID</i>	<i>Hazardous Substance</i>	<i>Concentration (mg/kg)</i>	<i>Benchmark Concentration (FDAAL)</i>	<i>Percent of Benchmark</i>	<i>Cancer Risk Concentration</i>	<i>Percent of Cancer Risk Concentration</i>	<i>Reference Dose</i>	<i>Percent of Reference Dose</i>
	NA							
			Highest Percent		Sum of Percents		Sum of	

SI TABLE 12: SENSITIVE ENVIRONMENT ACTUAL CONTAMINATION TARGETS

Environment ID: _____ **Sample Type:** _____ **Level I** _____ **Level II** _____ **Environment Value** _____

[illegible]

Environment ID: _____ **Sample Type:** _____ **Level I** _____ **Level II** _____ **Environment Value** _____

<i>Sample ID</i>	<i>Contaminant</i>	<i>Concentration (ug/L)</i>	<i>Benchmark Concentration (AWQC or AALAC)</i>	<i>Percent of Benchmark</i>
	NA			
			Highest Percent	

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT WORKSHEET

17

HUMAN FOOD CHAIN THREAT TARGETS

8. Record the water body type and flow (if applicable) for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a score of 0 at the bottom of this page.

<i>Fishery Name</i>	<i>Water Body Type</i>	<i>Flow</i>
		cfs
		cfs
		cfs
		cfs
		cfs

9. ACTUAL CONTAMINATION FISHERIES: If analytical evidence or direct observation indicates that any fishery listed above has been exposed to a hazardous substance from the site, record contaminant information on SI Table 11. Assign a score of 50 if there is a Level I fishery, or 45 for Level II.

10. POTENTIAL CONTAMINATION FISHERIES: If there is a release to a watershed containing fisheries within the target distance limit, but there are no Level I or Level II fisheries, assign a score of 21. If there is no observed release to the watershed, assign a value for potential contamination fisheries from the table below using the LOWEST flow at any fishery within the target distance limit.

<i>Lowest Flow</i>	<i>Potential Fisheries Score</i>
< 10 cfs	21
10 to 100 cfs	3
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	1

Score Data Type Referen

Ref
Nos
25,
26

T =

DRAFT

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT WORKSHEET

18

6/1991

ENVIRONMENTAL THREAT TARGETS

Score Data Type Refers

11. Record the water body type and flow (if applicable) for each surface water sensitive environment within the target distance limit (see SI Tables 13 and 14). If there is no sensitive environment within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Environment Name	Water Body Type	Flow
		cfs
		cfs
		cfs
		cfs
		cfs

12. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicates any sensitive environment listed above has been exposed to a hazardous substance from the site, record this information on SI Table 12, and assign a factor score using the environment value from SI Table 13 or 14.

Environment Name	Environment Type and Value (SI Tables 13 or 14)	Multiplier (10 for Level I, 1 for Level III)	Product
	x	=	
	x	=	
	x	=	
	x	=	

13. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS:

- A. For Potentially Contaminated Sensitive Environments located on surface water bodies with flows of 100 cfs or less, assign scores as follows:

Flow	Dilution Weight (SI Table 10)	Environment Type and Value (SI Tables 13 or 14)	Product
cfs	x	x 0.1 =	
cfs	x	x 0.1 =	
cfs	x	x 0.1 =	
cfs	x	x 0.1 =	
cfs	x	x 0.1 =	

Sum =

- B. If any Potentially Contaminated Sensitive Environment is located on coastal tidal waters, ocean, or great lakes, or a surface water body with flow greater than 100 cfs, assign a score of 1.

T =

Ref
Nob
25;
26

DRAFT

1991

SI TABLE 13: SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

<i>Sensitive Environment</i>	<i>Assigned Value</i>
Critical habitat for Federally designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes)	
National Monument (air pathway only)	
National Seashore Recreation Area	
National Lakeshore Recreation Area	
Habitat known to be used by Federally designated or proposed endangered or threatened species	75
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time	
Terrestrial areas utilized by large or dense aggregations of vertebrate animals (semi-aquatic foragers) for breeding	
National river reach designated as recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	
State land designated for wildlife or game management	25
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	
State designated areas for the protection or maintenance of aquatic life under the Clean Water Act	5
Wetlands	See SI Table 15 (Surface Water Pathway) or SI Table 20 (Air Pathway)

SI TABLE 14: SURFACE WATER
WETLANDS FRONTAGE VALUES

<i>Total Length of Wetlands</i>	<i>Assigned Value</i>
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

**SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY**

21

WASTE CHARACTERISTICS

Score

<p>14. A. If any Actual Contamination Target exists for the surface water pathway (pages, 14, 18, or 17), assign the hazardous waste quantity score calculated on page 4, or a score of 100, whichever is GREATER.</p> <p>B. If there is no Actual Contamination Target for the surface water pathway, assign the hazardous waste quantity score calculated on page 4.</p>	10																																																					
<p>15. Assign the highest value from SI Table 3 or 7 for the hazardous substance factors listed below. Multiply each by the surface water waste quantity score, and determine the waste characteristics score for each threat using the table below.</p>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;"></th> <th style="width:15%; text-align: center;">Substance Value</th> <th style="width:15%; text-align: center;">Hazardous Waste Quantity</th> <th style="width:15%; text-align: center;">Product</th> <th style="width:20%; text-align: center;">WC Score (from table)</th> </tr> </thead> <tbody> <tr> <td>Drinking Water Threat Toxicity/Persistence</td> <td style="text-align: center;">10,000</td> <td style="text-align: center;">10</td> <td style="text-align: center;">1×10^5</td> <td style="text-align: center;">18 <small>(maximum of 100)</small></td> </tr> <tr> <td>Food Chain Threat Toxicity/Persistence/Bioaccumulation</td> <td style="text-align: center;">5×10^4</td> <td style="text-align: center;">10</td> <td style="text-align: center;">5×10^5</td> <td style="text-align: center;">18 <small>(maximum of 1000)</small></td> </tr> <tr> <td>Environmental Threat Ecotoxicity/Persistence/Ecobiaccumulation</td> <td style="text-align: center;">5×10^6</td> <td style="text-align: center;">10</td> <td style="text-align: center;">5×10^7</td> <td style="text-align: center;">56 <small>(maximum of 1000)</small></td> </tr> </tbody> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Product</th> <th style="width:20%;">WC Score</th> <th style="width:30%;">Product</th> <th style="width:20%;">WC Score</th> </tr> </thead> <tbody> <tr><td>0</td><td style="text-align: center;">0</td><td>$1E+06$ to $<1E+0$</td><td style="text-align: center;">32</td></tr> <tr><td>>0 to <10</td><td style="text-align: center;">1</td><td>$1E+07$ to $<1E+0$</td><td style="text-align: center;">56</td></tr> <tr><td>10 to <100</td><td style="text-align: center;">2</td><td>$1E+08$ to $<1E+0$</td><td style="text-align: center;">100</td></tr> <tr><td>100 to $<1,000$</td><td style="text-align: center;">3</td><td>$1E+09$ to $<1E+1$</td><td style="text-align: center;">180</td></tr> <tr><td>$1,000$ to $<10,000$</td><td style="text-align: center;">6</td><td>$1E+10$ to $<1E+1$</td><td style="text-align: center;">320</td></tr> <tr><td>$10,000$ to $<1E+05$</td><td style="text-align: center;">10</td><td>$1E+11$ to $<1E+1$</td><td style="text-align: center;">560</td></tr> <tr><td>$1E+05$ to $<1E+06$</td><td style="text-align: center;">18</td><td>$1E+12$ or greater</td><td style="text-align: center;">1000</td></tr> </tbody> </table>			Substance Value	Hazardous Waste Quantity	Product	WC Score (from table)	Drinking Water Threat Toxicity/Persistence	10,000	10	1×10^5	18 <small>(maximum of 100)</small>	Food Chain Threat Toxicity/Persistence/Bioaccumulation	5×10^4	10	5×10^5	18 <small>(maximum of 1000)</small>	Environmental Threat Ecotoxicity/Persistence/Ecobiaccumulation	5×10^6	10	5×10^7	56 <small>(maximum of 1000)</small>	Product	WC Score	Product	WC Score	0	0	$1E+06$ to $<1E+0$	32	>0 to <10	1	$1E+07$ to $<1E+0$	56	10 to <100	2	$1E+08$ to $<1E+0$	100	100 to $<1,000$	3	$1E+09$ to $<1E+1$	180	$1,000$ to $<10,000$	6	$1E+10$ to $<1E+1$	320	$10,000$ to $<1E+05$	10	$1E+11$ to $<1E+1$	560	$1E+05$ to $<1E+06$	18	$1E+12$ or greater	1000
	Substance Value	Hazardous Waste Quantity	Product	WC Score (from table)																																																		
Drinking Water Threat Toxicity/Persistence	10,000	10	1×10^5	18 <small>(maximum of 100)</small>																																																		
Food Chain Threat Toxicity/Persistence/Bioaccumulation	5×10^4	10	5×10^5	18 <small>(maximum of 1000)</small>																																																		
Environmental Threat Ecotoxicity/Persistence/Ecobiaccumulation	5×10^6	10	5×10^7	56 <small>(maximum of 1000)</small>																																																		
Product	WC Score	Product	WC Score																																																			
0	0	$1E+06$ to $<1E+0$	32																																																			
>0 to <10	1	$1E+07$ to $<1E+0$	56																																																			
10 to <100	2	$1E+08$ to $<1E+0$	100																																																			
100 to $<1,000$	3	$1E+09$ to $<1E+1$	180																																																			
$1,000$ to $<10,000$	6	$1E+10$ to $<1E+1$	320																																																			
$10,000$ to $<1E+05$	10	$1E+11$ to $<1E+1$	560																																																			
$1E+05$ to $<1E+06$	18	$1E+12$ or greater	1000																																																			

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score (from page 13)	Targets (T) Score (pages 13, 16, or 17)	Pathway Waste Characteristics (WC) Score (determined above)	Threat $LR \times T \times WC$
Drinking Water	10	Ø	18	Ø <small>(maximum)</small>
Human Food Chain	10	Ø	18	Ø <small>(maximum)</small>
Environmental	10	Ø	56	Ø <small>(maximum)</small>

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

Ø

No analytical data to support contamination of residential soil

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: _____

Level I _____ Level II _____

Population _____

Sample ID	Hazardous Substance	Concentration (mg/kg)	Cancer Risk Concentration	Percent of Cancer Risk Concentration	Reference Dose	Percent of Reference Dose	Reference
	NA						
Sum of Percents					Sum of Percents		

Residence ID: _____

Level I _____ Level II _____

Population _____

Sample ID	Hazardous Substance	Concentration (mg/kg)	Cancer Risk Concentration	Percent of Cancer Risk Concentration	Reference Dose	Percent of Reference Dose	Reference
	NA						
Sum of Percents					Sum of Percents		

Residence ID: _____

Level I _____ Level II _____

Population _____

Sample ID	Hazardous Substance	Concentration (mg/kg)	Cancer Risk Concentration	Percent of Cancer Risk Concentration	Reference Dose	Percent of Reference Dose	Reference
	NA						
Sum of Percents					Sum of Percents		

SOIL EXPOSURE PATHWAY WORKSHEET

LIKELIHOOD OF EXPOSURE

	Score	Data Type
1. OBSERVED CONTAMINATION: If evidence indicates presence of surficial contamination (depth of 2 feet or less), assign a score of 550; otherwise, assign 0. Note that a likelihood of exposure score of 0 results in a soil exposure score of 0 (page 23).		Ref No 23
LE =	550	

RESIDENT POPULATION THREAT TARGETS

2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or daycare on or within 200 feet of areas of surficial contamination. Calculate the concentration level on SI Table 15 and enter the number of people: Level I: _____ people x 10 = _____ Level II: _____ people x 1 = _____ Total =	0	Ref No 23										
3. RESIDENT INDIVIDUAL: Assign a score of 50 if any Level I resident population exists. Assign a score of 45 if there are Level II targets but no Level I targets. If no resident population exists, assign 0.	0	Ref No 23										
4. WORKERS: Assign a score from the table below for the total number of workers at the site and nearby facilities with areas of surficial contamination associated with the site:												
<table border="1"> <thead> <tr> <th>Number of Workers</th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1 to 100</td> <td>5</td> </tr> <tr> <td>101 to 1,000</td> <td>10</td> </tr> <tr> <td>> 1,000</td> <td>15</td> </tr> </tbody> </table>	Number of Workers	Score	0	0	1 to 100	5	101 to 1,000	10	> 1,000	15	5	Ref. No. 3
Number of Workers	Score											
0	0											
1 to 100	5											
101 to 1,000	10											
> 1,000	15											
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Use SI Table 16 to assign a value for each terrestrial sensitive environment on an area of surficial contamination:												
<table border="1"> <thead> <tr> <th>Terrestrial Sensitive Environment Type</th> <th>Value</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Terrestrial Sensitive Environment Type	Value										Ref No 23
Terrestrial Sensitive Environment Type	Value											
Sum =	0											
6. RESOURCES	0	Ref No 23										
T =	5											

DRA

SI TABLE 16: SOIL EXPOSURE PATHWAY
TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

<i>Terrestrial Sensitive Environment</i>	<i>Assigned Value</i>
Terrestrial critical habitat for Federally designated endangered or threatened species National Park Designated Federal Wilderness Area National Monument	100
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species National Preserve (terrestrial) National or State terrestrial Wildlife Refuge Federal land designated for protection of natural ecosystems Administratively proposed Federal Wilderness Area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federally designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

DRAFT

SOIL EXPOSURE PATHWAY WORKSHEET (continued)

2

WASTE CHARACTERISTICS

7. Assign the hazardous waste quantity score calculated on page 4.	10	
8. Assign the highest toxicity value from SI Table 15.	10,000	
9. Multiply the toxicity and waste quantity scores. Assign the Waste Characteristics score from the table below: 1×10^5	WC = 18	

Product	WC Score	Product	WC Score
0	0	10,000 to <1E+05	10
>0 to <10	1	<u>1E+05 to <1E+06</u>	<u>18</u>
10 to <100	2	1E+06 to <1E+07	32
100 to <1,000	3	1E+07 to <1E+08	56
1,000 to <10,000	5	1E+08 or greater	100

RESIDENT POPULATION THREAT SCORE: $\frac{550 \times 5 \times 18}{82,500} = \frac{LE \times T \times WC}{82,500} =$

0.6

NEARBY POPULATION THREAT SCORE:

Population within one mile: 13336

2.0

SOIL EXPOSURE PATHWAY SCORE:

Resident Population Threat + Nearby Population Threat

2.6

$$\frac{18 \times 5 \times 550}{82,500} + 2.0$$

NO AIR SAMPLES TAKEN TO
SUPPORT CONTAMINATION OF AIR.

SI TABLE 17: AIR PATHWAY OBSERVED RELEASE SUBSTANCES

Sample ID: _____ Level I _____ Level II _____ Distance from Source (mi) _____

Hazardous Substance	Concentration (ug/m3)	Toxicity/Mobility	Benchmark Concentration (NAAQS or NESHAP)	Percent of Benchmark	Cancer Risk Concentration	Percent of Cancer Risk Concentration	Reference Dose	Percent of Reference Dose
NA								
	Highest Toxicity/Mobility		Highest Percent		Sum of Percents		Sum of Percents	

Sample ID: _____ Level I _____ Level II _____ Distance from Source (mi) _____

Hazardous Substance	Concentration (ug/m3)	Toxicity/Mobility	Benchmark Concentration (NAAQS or NESHAP)	Percent of Benchmark	Cancer Risk Concentration	Percent of Cancer Risk Concentration	Reference Dose	Percent of Reference Dose
NA								
	Highest Toxicity/Mobility		Highest Percent		Sum of Percents		Sum of Percents	

Sample ID: _____ Level I _____ Level II _____ Distance from Source (mi) _____

Hazardous Substance	Concentration (ug/m3)	Toxicity/Mobility	Benchmark Concentration (NAAQS or NESHAP)	Percent of Benchmark	Cancer Risk Concentration	Percent of Cancer Risk Concentration	Reference Dose	Percent of Reference Dose
NA								
	Highest Toxicity/Mobility		Highest Percent		Sum of Percents		Sum of Percents	

AIR PATHWAY WORKSHEET

26

LIKELIHOOD OF RELEASE

	Score	Data Type	Referen
1. OBSERVED RELEASE: If sampling data or direct observation support a release to air, assign a score of 550. Record observed release substances on SI Table 17.			
2. NO OBSERVED RELEASE: If sampling data do not support a release to air, assign a score of 500.	500		
LR =	500		

TARGETS

<p>3. ACTUAL CONTAMINATION POPULATION: Determine the number of people subject to exposure from a release of a hazardous substance to the air. Calculate levels of exposure on SI Table 17.</p> <p>Level I: _____ people x 10 = _____</p> <p>Level II: _____ people x 1 = _____ Total = 0</p>																			
<p>4. POTENTIAL TARGET POPULATION: Determine the number of people not subject to exposure from a release of a hazardous substance to the air, and assign the total population score from SI Table 18.</p>	109		Ref No 11																
<p>5. NEAREST INDIVIDUAL: Assign a score of 50 if there are any Level I targets. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Population exists, assign the Nearest Individual score from SI Table 18.</p>	20		Ref No 27																
<p>6. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (SI Table 13) and wetland acreage values (SI Table 19) for environments subject to exposure from the release of a hazardous substance to the air.</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Sensitive Environment Type</th> <th>Value</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table> <table border="1" style="width: 100%;"> <thead> <tr> <th>Wetland Acreage</th> <th>Value</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Sensitive Environment Type	Value							Wetland Acreage	Value									
Sensitive Environment Type	Value																		
Wetland Acreage	Value																		
Sum =	0																		
7. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Use SI Table 20 to determine the score for sensitive environments not subject to exposure from a release.	0.625		Ref No 20																
8. RESOURCES	0																		
T =	129.625																		

Site Name:

Date:

SI TABLE 18: VALUES FOR POTENTIAL CONTAMINATION AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category												Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
On a source	<u>100</u>	<u>20</u>	1	2	<u>5</u>	16	52	163	521	1,633	5,214	16,325	52,136	163,246	<u>5</u>
> 0 to 1/4 mile	<u>1,339</u>	20	1	1	1	4	13	<u>41</u>	130	408	1,303	4,081	13,034	40,811	<u>41</u>
> 1/4 to 1/2 mile	<u>3,187</u>	2	0	0	1	1	3	<u>9</u>	28	88	282	882	2,816	8,815	<u>9</u>
> 1/2 to 1 mile	<u>9,710</u>	1	0	0	0	1	1	3	<u>8</u>	26	83	261	834	2,612	<u>8</u>
> 1 to 2 miles	<u>31,323</u>	0	0	0	0	0	1	1	3	8	<u>27</u>	83	266	833	<u>27</u>
> 2 to 3 miles	<u>63,425</u>	0	0	0	0	0	1	1	1	4	<u>12</u>	38	120	376	<u>12</u>
> 3 to 4 miles	<u>74,891</u>	0	0	0	0	0	0	1	1	2	<u>7</u>	23	73	229	<u>7</u>
Nearest Individual =		<u>20</u>													Score = <u>109</u>

Ref. Nos. 311

SI TABLE 19: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

SI TABLE 20: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from SI Tables 14 and 20)	Product
Onsite	0.10	x <u>0</u>	<u>0</u>
		x <u>25 (Wetlands)</u>	<u>0.625</u>
0-1/4 mi	0.025	x	
		x	
1/4-1/2 mi	0.0054	x <u>0</u>	
		x	
		x	
		x	
Ref. No. 21			<u>0.625</u>

John Hassall Inc.
8002-064
June 30, 1992

AIR PATHWAY (concluded)

2

WASTE CHARACTERISTICS

9. If any Actual Contamination Targets exist for the air pathway, assign the hazardous waste quantity score calculated on page 4, or a score of 100, whichever is GREATER; if there are no Actual Contamination Targets for the air pathway, assign the hazardous waste quantity score calculated on page 4.

10

10. Assign the highest air toxicity/mobility value from SI Table 3 or 17.

10

11. Multiply the air pathway toxicity/mobility and waste quantity scores. Assign the Waste Characteristics score from the table below:

Product	WC Score	Product	WC Score
0	0	10,000 to < 1E+0	10
> 0 to < 10	1	1E+05 to < 1E+0	18
10 to < 100	2	1E+06 to < 1E+0	32
100 to < 1,000	3	1E+07 to < 1E+0	56
1,000 to < 10,000	6	1E+08 or greater	100

WC = 3

AIR PATHWAY SCORE

$$\frac{LE \times T \times WC}{82,500} =$$

2.357

$$\frac{500 \times 3 \times 129.625}{82,500}$$